

REMARKS

Claims 3-12 and 14-18 are active. Claims 1, 2 and 13 are canceled. The prior restriction has been withdrawn as the claims are deemed to constitute unity under the applicable PCT Rules and all claims have been examined on the merits. Priority is acknowledged of the prior submitted papers.

The references cited in the IDS not in the English language are not considered since their relevance has not been noted. However, their general relevance has been noted in that the cited documents were cited in a foreign Patent Office against certain of the foreign counterparts of the cited copending applications that were considered. To the extent that any of these copending applications are deemed relevant to the instant application, then certain of the cited foreign references corresponding to the counterparts of these copending applications may also be so relevant. Also the PCT search reports may report that certain of these copending applications may also list such foreign language references as well as their English language equivalents.

The Action states that the subject matter of the application admits of illustration by drawing to facilitate understanding of the invention. The term "invention" in this context refers to the claims. To the extent that this objection is based on the presence of device claims, then the present amendment which cancels all of the device claims meets this objection as the remaining claims are method claims. Applicants believe the present claims do not require a drawing as the steps of these claims may be readily understood without such a drawing. The claimed process steps are relative simple in

nature involving the conversion of a single layer into adjacent regions with different electrical conductivities. This subject matter would be readily understood by one of ordinary skill without such a drawing. If the Examiner insists that such a drawing is required, he is respectfully asked to further provide supporting reasoning.

The objection to claim 2 is made moot by reason of this claim being canceled. The rejections of the claims under 35 USC 112, 1st paragraph are believed addressed by the amendments made to the claims and are also believed moot. The objected to terminology is deleted and substituted with other terms which are believed acceptable, definite and clear on their face. The objection and rejections based on formal matters are believed met and this basis of the Action should be withdrawn.

It is believed that the substance of the claims is not changed by the amendments so that no new issues are raised with respect to the terminology used. For example, certain of the subject matter of prior claim 5 is introduced into present amended claim 3.

Amended claims 3-12 and 14-18 are submitted for the Examiner's reconsideration. Certain of the subject matter of claim 5 is included in amended claim 3. Claim 5 is amended and retained as it includes still other subject matter.

The rejection of the claims 1-18 and especially prior claim 5 over Chondross '977 is traversed. Prior claim 5 called for:

wherein one of the functional layers is a semiconductive layer, in which a conductive structure is introduced in a controlled manner into the semiconductive functional layer by partial covering and treatment of the uncovered regions with a redox composition

claimed.

The Action states that Chondross discloses changing the redox potential of a functional layer such as a polyaniline film using an oxidizing agent. The Action states that the film is formed into a semiconductive region citing col. 2, lines 26-32 , col. 5, lines 13-62 and Figs. 2-3. There is no mention of a semiconductor in these locations of the reference. Applicants have carefully reviewed this reference and fail to find a disclosure of a semiconductor therein. If the Examiner persists in this rejection he is respectfully requested to point out with particularity the exact location of such a disclosure because applicants can find none. The Action misconstrues the definition of a semiconductor as noted below, asserting it merely constitutes a level of conductivity between conductive and non conductive. This is not a correct definition of a semiconductor as discussed hereinafter.

Initially, the polyaniline film is a conductor not a semiconductor as claimed. See col. 4, lines 39-44 where at line 39 it is stated "The conductive polyaniline layer. . ."

A conductive layer means to one of ordinary skill an electrically conductive layer, the equivalent of a metal layer, for example, which obviously is electrically conductive. See col. 4, lines 36-38, stating "the conductive polyaniline layer is applied onto a substrate and patterned to form one or more device features such as a gate electrode." (underlining added) Plainly, this means an electrically conductive material and an electrode, especially a gate electrode. An electrode is meant to be an electrically conductive element, for example, it is an electrode in a field effect transistor.,

and typically in prior art transistors is metal. See McGraw-Hill Dictionary of Scientific and Technical Terms, 1974, Page 609. An electrode is "An electrical conductor through which an electric current enters." McGraw-Hill Dictionary of Scientific and Technical Terms, 1974, Page 473. One of ordinary skill would so construe an electrode to be an electrically conductive material. It is not a semiconductor and not an insulator. The conductive polyaniline thus is not the claimed homogeneous single organic semiconductive layer of present claim 3 nor that of the prior claim 5.

The Action then states incredulously that

"the claims fail to define a degree (such as conductivity level) which distinguishes a semiconductive state from a conductive state, such as for example, and as such the conductivities can be arbitrarily defined so long as the conductivity of the semiconductive state is lower than the conductive state."

This statement reflects lack of understanding of what constitutes a semiconductor, a term of art in the electronics industry, and is in error as applied to the claims. There is no such thing as a "semiconductive state." This is not how a semiconductor is defined. A semiconductor is not a relative term based on relative conductivity state of a material. That is a measure of resistance and is irrelevant to defining a semiconductor. A semiconductor is a type of material that has certain electrical characteristics. It is an insulating material that is conditioned to be non-conductive exhibiting a very high electrical resistance until made electrically conductive (negligible resistance) by exposure to an electronic applied signal, a current or an electric field as in a field effect transistor, wherein the semiconductor material acts as

an electronic switch. The semiconductor comprises a unique material that switches states from insulator (high resistance) non-conductive to conductive (low resistance). A switch is not a device that exhibits a degree of conductivity, which would mean it merely is a resistor, or else it could not function as a switch, it would be resistive and thus would not be desirable as a switch, i.e., a switch is either open (electrically non-conductive) or closed (electrically conductive) and is not a resistor which is something else. It behooves the Examiner to understand the meaning of terms in a claim prior to rejecting them out of lack of understanding of what the terms mean.

The cited '977 reference fails to disclose a semiconductor and, more particularly, the claim 3 method of

converting the second region of the semiconductive functional layer into a different conductive functional region by partial reaction of the semiconductive layer in the second region;
the forming step including forming the second region by converting the semiconductive functional layer in the second region in a controlled manner by printing the second region with a composition for implementing said partial reaction

The reference as discussed above does not convert a semiconductive functional layer as claimed. The reference discloses making a portion of the electrically conductive layer of polyaniline into an insulator (10^{-6} S/cm, Col. 7, lines 1-17), hardly what is comparable to what is claimed relating to a semiconductor and is not a disclosure or suggestion thereof. The fact that the reference discloses this material as having different degrees of conductivity, i.e., a resistor, which has different degrees of

conductivity, is irrelevant to the construction of a semiconductor.

The Action states that the claim fails to distinguish how the printing occurs, and as such any arbitrary method, such as spin-coating is a printing process. This conclusion is improper. It behooves the examiner to understand the meaning of terms of art as claimed before speculating improperly as to any arbitrary meaning that comes to mind.

Spin coating is not a printing process. It is a coating process that deposits a layer of material randomly over a relatively wide non-defined area. Printing entails using a stamp or similar mechanical means to transfer a printing medium from one surface to the surface to be printed, which one printed surface comprises a well defined area that has narrowly defined metes and bounds defined by the mechanical transfer means, whether it be a stamp or something else. Printing in the art of fabrication of layers useful in a transistor may be referred to sometimes as a process for forming a structured layer. A structured layer is one wherein the layer has well defined discrete boundaries that are not obtainable by spin-coating, or other similar known deposition processes without further steps being taken to confine the process to well defined discrete boundaries which define specific regions of the layer forming the device.

See the '977 reference col. 9, lines 38-42 stating the solution was spin-coated on a substrate by pouring the solution over the center of the substrate and then spinning the substrate to spread the solution over the surface of the substrate. If this spreading of a coating by spinning is an example of printing as expressed by the Action, then

applicants respectively request an authority be provided, because applicants know of no such authority. If the Examiner knows this based on personal knowledge, then an affidavit under 37 CFR 1.104 (d) (2) is respectfully requested. The Action states that Chandross teaches organic materials. This is not what is claimed.

Further, no location in this reference could be found that specifically shows the disclosure or suggestion of what is claimed, much less even an organic semiconductor, which simply is not merely organic material as implied of some conductivity as asserted. The Action is not directed to what is claimed. Claim 3 is believed allowable.


The remaining claims, which depend from and thus include the subject matter of claim 3, are equally foreign to the disclosure of the cited reference and are believed allowable for similar reasons.

For the reasons given, since applicants have shown that claims 3-18 are in proper form for allowance, such action is respectfully requested.

No fee is believed due for this paper. However, the Commissioner is authorized to charge or credit deposit account 03 0678 for any under and over payments in connection with this paper.

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